

09/937003

PATENT  
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Application No. Not Assigned  
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JC03 Rec'd PCT/PTO 19 SEP 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
Masayuki SEGAWA et al. )  
Application No.: Not Assigned Yet ) Group Art Unit: Not Assigned Yet  
Filed: September 19, 2001 ) Examiner: Not Assigned Yet  
For: SPARK PLUG FOR INTERNAL )  
COMBUSTION ENGINE )

Commissioner for Patents  
Washington, DC 20231

Sir:

**PRELIMINARY AMENDMENT**

Prior to the examination of the above-identified application on the merits, please amend the application as follows:

**IN THE CLAIMS:**

Please amend claims 1, 2, 4, and 5 to read as follows:

1. (Amended) A spark plug for an internal combustion engine comprising:  
a center electrode including a basic body and a first tip joined to said basic body; and  
a ground electrode including a base having an interlayer formed at a predetermined position of said base, and a second tip joined to a surface of said interlayer,  
wherein said first tip and said second tip are disposed to face each other, said first tip and said second tip are each made of Ir or made of an Ir alloy,  
wherein a thermal expansion coefficient of said interlayer is between a thermal expansion coefficient of said base and a thermal expansion coefficient of said second tip.
2. (Amended) The spark plug for an internal combustion according to Claim 1,  
wherein said first tip and said second tip are each made of an Ir alloy that contains (1) Rh of 1.5

to 50 weight %, (2) Pt of 1 to 10 weight %, or Rh of 1.5 to 50 weight % and Pt or Ru of 1 to 10 weight %, and said interlayer is made of an Ir or Pt alloy.

4. (Amended) The spark plug for an internal combustion according to Claim 1, wherein the whole surface of said interlayer is covered with said second tip.

5. (Amended) The spark plug for an internal combustion according to Claim 1, wherein a good thermal conduction core is disposed in an interior of said base of said ground electrode.

Please add new claims 6-10 as follows:

6. (New) The spark plug for an internal combustion according to Claim 2, wherein a good thermal conduction core is disposed in an interior of said base of said ground electrode.

7. (New) The spark plug for an internal combustion according to Claim 3, wherein a good thermal conduction core is disposed in an interior of said base of said ground electrode.

8. (New) The spark plug for an internal combustion according to Claim 4, wherein a good thermal conduction core is disposed in an interior of said base of said ground electrode.

9. (New) The spark plug for an internal combustion according to Claim 1, wherein said basic body and said first tip are joined to each other by laser welding.

10. (New) The spark plug for an internal combustion according to Claim 1, wherein said interlayer and said second tip are joined to each other by electric resistance welding.

**REMARKS**

By this Preliminary Amendment, Applicants have amended claims 1, 2, 4, and 5, and added new claims 6-10 merely to conform the claims to more conventional U.S. practice, thereby improving the form of the claims. Accordingly, claims 1-10 are currently pending in this application. Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attachment is captioned, "Version with Markings to Show Changes Made."

**Conclusion**

In view of the foregoing, Applicants amended the claims to place the application in better condition for examination. A favorable action on the merits is respectfully solicited.

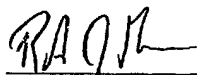
If there are any other fees due in connection with the filing of this preliminary amendment, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

MORGAN, LEWIS & BOCKIUS LLP

Dated: September 19, 2001

By:



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 1, 2, 4, and 5 as follows:

1. (Amended) A spark plug for an internal combustion engine ~~[characterized in that the spark plug comprises]~~ comprising:

a center electrode ~~[comprising]~~ including a basic body and a first tip ~~[for the center electrode]~~ joined to said basic body; and

a ground electrode ~~[comprising]~~ including a base~~;~~ having an interlayer formed at a predetermined position of said base, and a second tip ~~[for the ground electrode]~~ joined to a surface of said interlayer,

wherein said first tip ~~[for the center electrode]~~ and said second tip ~~[for the ground electrode]~~ are disposed to face each other, said first tip ~~[for the center electrode]~~ and said second tip ~~[for the ground electrode]~~ are each made of Ir or made of an Ir alloy ~~[chiefly composed of Ir]~~,

wherein a thermal expansion coefficient of said interlayer is between a thermal expansion coefficient of said base and a thermal expansion coefficient of said second tip ~~[for the ground electrode]~~, said basic body and said tip for the center electrode are joined to each other according to laser welding, and said interlayer and said tip for the ground electrode are joined to each other according to electric resistance welding].

2. (Amended) The spark plug for an internal combustion according to Claim 1, wherein said first tip ~~[for the center electrode]~~ and said second tip ~~[for the ground electrode]~~ are each made of an Ir alloy ~~[chiefly composed of Ir]~~ that contains (1) Rh of 1.5 to 50 [mass] weight %, (2) Pt of 1 to 10 [mass] weight %, or Rh of 1.5 to 50 [mass] weight % and Pt or Ru of 1 to 10 [mass] weight %, and said interlayer is made of an Ir or Pt alloy ~~[chiefly composed of Pt or Ir]~~.

4. (Amended) The spark plug for an internal combustion according to Claim 1, wherein the whole surface of said interlayer is covered with said second tip [~~for the ground electrode~~].

5. (Amended) The spark plug for an internal combustion according to [~~any one of Claims~~] Claim 1 [~~through 4~~], wherein a good thermal conduction core is disposed in an interior of said base of said ground electrode.

Applicants added new claims 6-10.